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THE STANDARDIZATION AND QUALITY OF PRODUCTS OF SOVIET INDUSTRY

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The directives of the 19th Party Congress concerning the Fifth Five-Year Plan include the following instruction: "A further marked improvement of the quality of products in all branches of industry must be guaranteed. The assortment of goods must be expanded and improved, and the production of types of commodities which are in short supply must be increased in accordance with the needs of national economy. State standards conforming to modern requirements must be enforced."

Standardization involves the establishment of state all-union standards compulsory for all branches of national economy: these standards provide indices determining the quality of industrial and agricultural products, and also provide for a more efficient utilization of raw materials, other materials, electric power, and fuel. By establishing more advanced technical and economic indices, standards tend to lower production costs, reduce planning periods, and aid in mastering new types of production.

State standards are established after taking into consideration all the latest achievements of science and technology and the most advanced practical experiences and are designed to help industrial enterprises in determining the best possible consumption norms for raw materials, fuel and other materials, and norms for utilization of equipment. Thus, the dimension, parameter and type of material established by state standard for the production of a certain product provides the basis for determining an advanced norm for the consumption of materials necessary for production. This inner connection between standards and advanced production norms reflects the importance of state standardization in the planning of national economy.

The establishment and introduction of state standards also helps to disclose and utilize reserves for raising labor productivity and increasing the total volume of output. Especially, the introduction of standards facilitates the use of mass and constant-flow production methods.

At present the chief types of products of large-series and mass production are manufactured in conformance with technical specifications established by standards. For example, over 90 percent of all rolled metal products are manufactured strictly in accordance with established state standards. More than 95 percent of all petroleum products for engines, machines, and mechanisms are produced according to standards. More than 70 percent of all food products are produced according to specifications contained in state standards. In the case of products for which no state standards have as yet been established, technical specifications are being worked out, which are approved by the producing ministries, by agreement with the consumers. This makes it possible to manufacture products with fixed quality indices which correspond to the present level of production techniques and the demands of national economy.

There are more than 8,000 state standards in the USSR. These standards are revised periodically and are renewed in accordance with the latest achievements of science and technology and the growing demands of national economy. This helps to expand the assortment of goods, improve the quality of the goods, and increase its strength and wear resistance. For example, a large group of standards

was recently revised on tractor spare parts, cylinder liners, crankshafts, and piston rings. The introduction of these standards does not require additional consumption of materials or changes in designs and sizes of the mass-produced parts.

In the field of machine building, standards have been established to determine the necessary types and essential qualities of machines and equipment; these standards provide for the output of improved types of machines with increased productivity and an improved coefficient of efficiency.

The new standards and general technical specifications for measuring instruments place much higher demands on the quality of the instruments and increase the number of high-precision instruments. Values of permissible error of the instruments have been reduced 50 percent. Guarantee periods have been established and the requirements for finishing quality have been raised. The quality of radio receivers has been greatly improved, the basic power and acoustic parameters have been strictly defined, and the indices for the width of frequency bands and background noise have been improved.

The standards for consumer goods, in addition to raising quality requirements, provide for a larger assortment of products in order to satisfy the growing demands of the people. Such standards include factory-made footwear, clothing, and individual types of cotton, silk, and woolen fabrics.

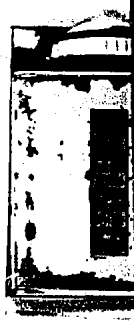
Over 200 standards for products of light and food industry have recently been examined and approved. For example, the standard for cotton fiber has raised the requirements for purity of cotton and has established maximum norms for the content of impurities; if these norms are exceeded, the cotton fiber is placed in a lower grade. The new standard guarantees an improvement in the technological process of primary cotton processing, increases the output of high-grade cotton, and raises labor productivity and the productivity of cotton industry equipment. The standards for wool establishes new quality indices and permissible deviations for the thickness of the fiber; in the case of fine-fleeced wool, the norms for length have been raised 10 percent and norms have been established for moisture content and residual fat, thereby improving the quality of wool.

The standards for textiles introduce new improved types of fabrics and raise the requirements for physicomechanical indices, resistance to tear, thickness of the fabric according to warp and weft, and also a number of indices to improve the color fastness of textiles, which did not exist in previous standards. The new standards provide for improved physicomechanical indices of threads, especially resistance to tear and uniformity; the third grade of thread, which did not satisfy the consumer, has been taken out of production.

Particularly important are the new standards for sewn products. A higher quality of sewing is required to improve the appearance of garments. The requirements for determining high-grade quality of sewn products have been raised considerably.

The standards for knitwear provide for a larger assortment of styles to be manufactured and an improvement of their outer appearance. Special attention is given to color fastness.

By increasing the yarn count in the manufacture of hosiery, the amount of yarn required for the manufacture of one pair of hose is reduced. The fourth and fifth grades of yarn, which do not satisfy customers' demands, have been withdrawn from production.



Not less important work has been done in improving the quality of confectionery goods. The assortment of high-grade kinds of chocolate, khalva, caramels, marmalade and other confectionery products has been considerably increased. New requirements have been established for the packing and wrapping of these products.

The quality of dairy products has been increased considerably, especially creamery butter, cheese, milk, sour cream, and ice cream. The assortment of new types of soft cheeses has been increased. The standards for nonalcoholic beverages, such as kvass, lemonade, cranberry juice, and fruit beverages, have been revised in order to improve their quality. The consistency of these beverages has been increased, the content of carbonic acid has been raised, and the raw materials used in the production of nonalcoholic beverages have been standardized.

The new standards for fish products provide for improved quality, enlarged assortment of fish products, and a reduction of the salt content for many kinds of fish. Rules have been established for storing and transporting fish and fish products.

The purpose of standardization is not confined to the establishment of quality indices for various products. Standardization also plays an important part in the economical utilization of material resources. Among other things, the directives of the 19th Party Congress for the Fifth Five-Year Plan call for a stricter economy in the use of material resources by eliminating excessive consumption of materials and equipment, cutting out waste, introducing economical types of materials, and using full-value substitutes and advanced production methods on a wide scale.

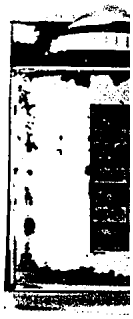
One of the most important tasks of standardization is the discovery and mobilization of reserves for the economical use of metals. It should be noted here that the current designs of machines do not prescribe the use of the most economical and the lightest shapes of rolled metal. Ferrous metallurgy is still not producing a sufficient assortment of shaped profiles, and not more than 30-40 new shapes per year are being put into production. Meanwhile the use of special profiles would considerably reduce the weight of machines and mechanisms. Only by redistributing special profiles would it be possible to reduce metal consumption by 20 to 30 percent, and the use of hollow profiles would produce a saving of up to 50 percent. In addition to saving metal, the use of economical shapes also reduces labor expenditure in the machine-building industry.

Until now, many designers and scientific research institutes have failed to show the necessary initiative in developing and using new improved shapes of metal. In this field, state standards have been inadequate. So far, only a few standards for special shapes in agricultural machine building and in construction have been approved. This is only the beginning. The Ministry of Metallurgical Industry and the Ministry of Machine Building must devote more work to the introduction and standardization of new economical shapes of metal products.

One of the principal ways of saving metal is by increasing precision in the rolling process. Much work has been done in this field during 1952. For most standards, the positive allowances have been lowered 30-50 percent as compared with previous standards.

Equally important work has been done in improving the mechanical properties of steel and alloys. The revised standards contain higher indices of mechanical properties, such as indices of strength, plastic properties, etc., thus making it possible to reduce metal consumption 5 to 8 percent.

Unification of parts in machine building is extremely important in reducing the consumption of metal and labor. Unification makes it possible to use the same parts in different machines and mechanisms without impairing their value.



During the past few years, Soviet industry has made considerable progress in improving the quality of products. However, individual enterprises still continue to put out low-quality products, which do not meet established standards and technical specifications. There have been cases where second-grade products have been released as top-grade products. A number of machine-building enterprises have been producing low-quality machines and equipment, violating existing standards and technical specifications. The technical control divisions of these enterprises have been exercising poor control over the quality of machine parts. Some plants are not using modern measuring methods and are slow in introducing automatic production methods and mechanic supervision.

Violations of standards and technical specifications have been discovered in enterprises of the Ministry of Light and Food Industry. For example, the Margelan Silk Combine has tolerated defects in the appearance and strength of fabrics, which did not conform to any standard; however, the technical control division and the management of the enterprise released this fabric as a top-grade product. At the Ozery Cotton Combine, 85 percent of the flannel produced did not conform to quality indices established by state standards and technical specifications. Several factories in Minsk have produced footwear of low quality. A number of Belorussian factories have produced poor-quality confectionery by disregarding prescribed recipes and production techniques. The Tambov and Saratov meat combines have produced nonstandard sausage products. For example, the sausage produced by the Saratov Meat Combine had a moisture content of 13 percent above norm.

As a result of measures taken by the Ministry of Light and Food Industry, the combines have made serious efforts to improve production techniques and technical control.

Until now, the technical divisions of main administrations of ministries have taken little part in the work on standardization. Many main administrations restrict themselves to transmitting the standards and technical specifications of their ministries, without analyzing the contents of these standards which have been worked out by organizations under their jurisdiction.

The Administration for Standardization under the Gosplan USSR has not been exercising sufficient control over the observance of state standards and technical specifications. Until now there have been many branches of industry where not a single enterprise has been checked, even though individual enterprises have violated existing state standards.

It would greatly increase efficiency if special scientific research institutes and design bureaus were entrusted with the task of working out new state standards, as has been done in the Ministry of Machine Building. Such a base organization should consider the demands of consumers, correlate materials from all enterprises manufacturing a certain product, and work out suggestions for raising the quality of this product. Only a correct technical and economic analysis of indices contained in the standards would make it possible to avoid errors, which unfortunately are still permitted in the preparation of standards. All enterprises, organizations, and individuals involved in the introduction of a new standard, as well as the consumers of the product, should be able to convince themselves by practical experiment that the planned indices are useful and practical. An approved state standard is an obligatory document for all enterprises, organizations, ministries and departments, both for producers and consumers.

In working out drafts of new standards, provisions must be made for all the important indices characterizing the quality of a certain product. For example, a further improvement in the quality of metal should be guaranteed by developing and introducing special shapes of rolled sections and pipes, more efficient shapes

for machine building and construction, and for replacing alloy elements in short supply by those more readily available. The drafts of standards should provide for the introduction of new types of steel and alloys with improved mechanical and physical properties, mainly such indices as strength, viscosity, wear resistance, weldability, and cold resistance. Improved methods for testing the physical properties of steel and alloys should also be provided.

In the coal industry, a higher quality of fuel should be provided by lowering the content of ash, sulfur and moisture, and by a more efficient utilization of different types of coal depending on their physical properties and the size of the pieces. All the principal coal basins should be completely covered by the standards establishing quality indices for the quality of coal and anthracite, depending on its use. This will make it possible to lower the norms for consumption of fuel in various power installations.

In the petroleum industry, the improvement of quality indices for liquid fuel, oils, and lubricants should lead to the development of new types of oils and fuels, so as to reduce the wear of engines and mechanisms, and prevent scale formation, oxidation, and corrosion. In establishing certain indices of standards, one should also consider the operation of modern engines and mechanisms at high and low temperatures.

In the field of machine building, particular attention should be given to precision, reliability in operation, and length of service of machines and mechanisms. Provisions should be made for improving the coefficient of efficiency and lowering the weight of machines, thereby reducing the amount of material required. Special attention must be given to raising the carrying capacity and speed of transport vehicles, reducing consumption of fuel and lubricants, lengthening the service period, and, in the case of passenger vehicles, making them more comfortable.

One of the most important tasks of standardization is to improve the quality and develop a large assortment of consumer goods. According to the Fifth Five-Year Plan, the output of enterprises of light and food industry is to be increased by 70 percent and the output of local and cooperative industry, by 60 percent.

Special measures have been taken recently to ensure the production in 1953 of a large quantity of manufactured and food products over and above the originally approved plan. Branches of industry manufacturing consumer goods have been given large supplementary production quotas. Many new enterprises of light and food industry have been built; the existing plants and factories are being equipped with modern machinery, high-speed automatic machines, mechanisms, and instruments.

The organizations entrusted with working out state standards and approving them must revise the outdated indices of existing standards which tend to retard the improvement of quality. The development of new standards must include all types of consumer goods. For example, in addition to the existing indices for strength and wear resistance of fabrics, new indices should be established to improve the quality of dyes, wetting agents, and fixing agents used in the textile industry, so as to improve the color fastness of fabrics when exposed to light, moisture, and washing.

Standards for sewn products must be improved considerably. Some enterprises of the sewing industry do not follow existing standards. Many of the best styles and designs, worked out by fashion centers, are not produced by industry, and some enterprises cut down on the finishing operations, thereby impairing the quality of the goods.

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The quality of products of light industry depends to a large extent on the quality of raw material supplied by enterprises of the Ministry of Agriculture and Procurement. However, many types of raw material do not completely conform to requirements of current standards. For example, the cotton-ginning industry has obtained poor results in the cleaning of cotton and during the past few years there have been many cases of impurities in the cotton delivered. The processing and storing of leather raw material is badly organized, so that frequently good raw material deteriorates and it becomes increasingly difficult to produce high-quality leather which would satisfy standard requirements. The quality of wool raw material is also often below the established standard. The quality of raw materials delivered to light and local industry must be greatly improved.

The work of standardization is furthered considerably by the consolidation of ministries and also by the transfer of the Administration for Standardization to the Gosplan USSR. This has created favorable conditions for a closer coordination between the work of standardization and the planning of national economy.

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